A new species of *Glyphostoma* (Gastropoda: Clathurellidae) from the Gulf of Mexico

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ABSTRACT

Glyphostoma coronaseminale new species is described and compared with the Western Atlantic species *G. dentiferum* Gabb, 1882, *G. epicasta* Bartsch, 1934, *G. gabbii* (Dall, 1889), *G. golfoyaquense* Maury, 1917, and *G. herminea* Bartsch, 1934.

INTRODUCTION

Two decades of research campaigns conducted in the Gulf of Mexico by the Biology Department at the University of Louisiana at Lafayette (ULL) have led to many molluscan discoveries (e.g., Garcia, 2003, 2005, 2006). The cruises have utilized the R/V Pelican, a ship managed by the Louisiana Universities Marine Consortium (LUMCON).

In September, 2014 a cruise that terminated west of Dry Tortugas, Florida, was conducted by ULL marine biologists Drs. Darryl Felder and Suzanne Fredericq. This was the last of five cruises executed under the designation Gulf of Mexico Research Initiative (GoMRI). Two types of dredges were used, the standard box dredge and the Benthic Skimmer, a large, more efficient dredge specially designed for soft bottom (see García, 2007a). This dredge was in use when the holotype of the *Glyphostoma* species described herein was collected.

The genus *Glyphostoma* was erected by Gabb for the fossil taxon *G. dentiferum*; it is known from the Pliocene and Miocene of the Caribbean and the southeastern United States, but it is also part of the recent fauna. Powell (1966: 115) considered this taxon to be mostly American. Although it had been used for recent Indo-Pacific species, most of these could be assigned to either *Etrema* or *Lienardia*. Nevertheless, many Recent Indo-Pacific species have been assigned to *Glyphostoma* (WoRMS, 2014).

In the Western Atlantic, the genus *Glyphostoma* can only be confused with *Lioglyphostoma* Woodring, 1928, which differs by the lack of labral denticles and the "growth wrinkles on the anal fasciole" (Woodring, 1928: 193). These "wrinkles", characteristic of the *Glyphostoma* species described so far, are lacking in the species described here; they have been substituted by well-defined nodes, therefore differentiating the sculpture of the anal fasciole from all other Western Atlantic *Glyphostoma*.

SYSTEMATICS

Family Clathurellidae H. Adams & A. Adams, 1858

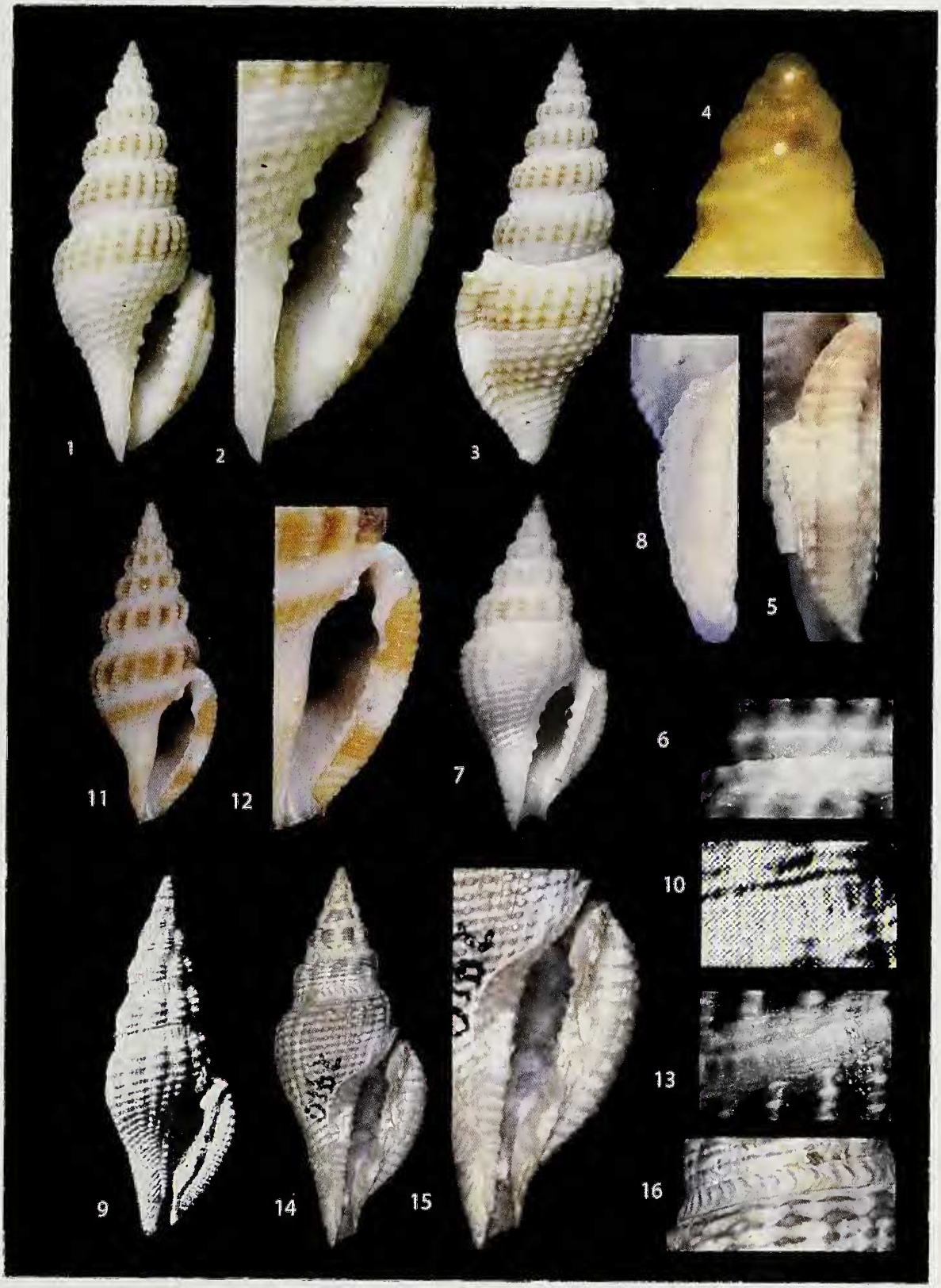
Genus *Glyphostoma* Gabb, 1872

Type Species: *Glyphostoma dentiferum* Gabb, 1872, by monotypy.

Glyphostoma coronaseminale new species (Figures 1–8)

Diagnosis: A white shell with a wide peripheral pale-yellow band on apical whorls and a second, anteriorly positioned band of the same color on last whorl; with a constricted anal fasciole ornamented with spirally extended nodes, and a parietal wall showing a nodose callus at entrance of anal fasciole, a posterior denticle, two centrally positioned plicae, and an anterior denticle followed by increasingly smaller, at times very weak, nodules.

Description: Holotype (Figures 1–6) 23.2 mm in length, strong, fusiform (length/ width ratio 2.64). Protoconch (Figure 4) conical, of approximately 3.25 smooth, yellowish whorls; first whorl minute, translucent; following whorls developing a sub-medial keel of increasing strength; a second, short keel appearing anteriorly, just above suture, towards termination of last whorl. Transition to teleoconch indicated by a shallow, strongly sinuous scar, a change in coloration from yellowish to white, and the beginnings of the adult sculpture, Teleoeoneh of 7.5 convex, subsuturally constricted whorls, creating a shoulder. Suture strongly impressed on early whorls, narrowly channeled on later whorls, crenulated by a row of strong nodes on anal fasciole (Figure 6). Axial sculpture of strong opisthocline, rounded ribs of even size, as wide as interspaces; 10 ribs on first whorl, progressively increasing to 24 on last whorl, almost reaching anterior end before evanescing; last two



Figures 1–16. *Glyphostoma* species. **1–8.** *Glyphostoma coronaseminale* new species. **1–6.** Holotype USNM 1274997, west of Dry Tortugas, SW Florida: 25°31.091′ N, 84°28.391′ W to 25°27.939′ N, 84°27.145′ W; in 352–361 m, 23.2 mm. **7–8.** Paratype USNM 1274998, southwest of Key West, Florida, in 84 m, 17.2 mm. **9–10** Gluyphostoma golfoyaquense Maury, 1917, type figure (after Maury), Río Cana, Santo Domingo, 20 mm. **11–13.** *Glyphostoma gabbii* (Dall, 1889). Syntype, USNM 87410, off Barbados, in 300 m, 17.5 mm. **14–16.** *Glyphostoma dentiferum* Gabb, 1872. Lectotype, ANSP IP2910, fossil, no data, 32.1 mm.

adapertural ribs almost reaching anterior end. Spiral sculpture of strong cords; cords developing heavy, spirally extended nodes as they cross axial elements; three cords on first whorl, progressively increasing to 6 by penultimate whorl; three peripheral cords strongest; a constricted band of strong, spirally extended nodes on anal fasciole appearing from earliest whorls; nodes not necessarily coinciding with axial cords, which are undercut by subsutural constriction; approximately 30 nodes on last whorl. Aperture (Figure 2) narrowly elongate, 12.2 mm in length, with short, tapering anterior canal slightly recurved to the right; outer lip strengthened by an abaperturally concave varix which terminates posteriorly in a deep, U-shaped sinus; varix crossed by 18 spiral cords, axially incised by a strong indentation which creates a secondary, thinner labrum; a third labral element, terminating in bifurcate denticles (broken at either side in the holotype), projects out of this secondary labral element (Figure 5). Inner labrum with 8 strong denticles; posterior denticle slightly stronger, slightly callused towards sinus. Parietal wall (Figure 2) with a moderately strong, nodulose callus at sinus entrance; central parietal wall with a small posterior denticle, followed by two strong plaits that continue into the inner aperture, an anterior bifurcate denticle, and a series of barely discernible nodes. Shell color white, with a pale-yellow peripheral band the width of 3 spiral cords on apical whorls and 5 on last whorl; a second sub-peripheral band on last whorl; coloration somewhat stronger in interstices.

Type Material: Holotype USNM 1274997, length 23.2 mm; width 8.8 mm (Figures 1–6). Paratype USNM 1274998, length 17.2 mm, width 7.1 m (Figures 7–8).

Type Locality: West of Dry Tortugas, SW Florida: 25°31.091′ N, 84°28.391′ W to 25°27.939′ N, 84°27.145′ W; in 352–361 m,

Distribution: Southwest of Key West to west of Dry Tortugas, southern Florida, in 84–361 m.

Habitat: *Glyphostoma coronaseminale* new species inhabits relatively deep water. The holotype was dredged in a sand bottom with broken shells. Other key species dredged in the same haul were a live specimen of *Bathytoma viabrunnea* Dall, 1889 and empty specimens of *Bartschia frumari* Garcia, 2008.

Etymology: A compound word from the Latin *corona* and *seminale* ("crown of seeds"); in reference to the characteristic spiral row of nodules that is present at the anal fasciole.

DISCUSSION

The paratype of *Glyphostoma coronaseminale* (Figures 7–8) is bleached out, faintly showing the color bands; its central parietal wall shows the posterior dentiele, the two subsequent plaits, and the anterior denticle, but the following anterior nodes are stronger than those of the holotype. As the latter was inhabited by a hermit crab, the weaker nodes may be a result of erosion The varical structure of the labrum of the paratype shows the same three stages of growth as the holotype, including the thinner, but strong, bifurcate denticles at the edge.

The specimens identified as *Glyphostoma golfoyaquense* Maury, 1917 in Kaicher's card 3882 (1984), and in Williams's (2005) image 5115 are *G. coronaseminale*. *Glyphostoma golfoyaquense* (Figures 9–10) is narrower, has fewer, wider axial ribs that become narrower and bifurcate at anterior half of last whorl, has a differently structured anal fasciole (Figure 10), and different dentition on parietal wall. The maximum reported size for *G. golfoyaquense* is 20 mm (Rosenberg, 2009).

The size, parietal dentition, and numerous, even-size axial ribs separate this new species from several other Western Atlantic *Glyphostoma*. *Glyphostoma pilsbryi* Schwengel, 1940, which inhabits waters of the Gulf of Mexico (García, 2007b) grows only to 9.5 mm, is relatively wider, and has fewer, thicker axial ribs. *Glyphostoma epicasta* Bartsch, 1934 has a more elongated, milky white shell with a longer siphonal canal, different structure of the anal fasciole, and different dentition on parietal wall. It grows larger than the new species, to a maximum reported size of 31 mm (Rosenberg, 2009). *Glyphostoma herminea* Bartsch, 1934 grows to a maximum size of 21 mm (Rosenberg, 2009), is yellowish white in coloration, has fewer, wider axial ribs, a more sloping, less constricted, differently sculptured anal fasciole, and different dentition on parietal wall.

The new species is most similar to *Glyphostoma gabbii* (Dall, 1889) and *Glyphostoma. dentiferum* Gabb, 1872. *Glyphostoma gabbii* (Figures 11–13) has a wider aperture, fewer axial ribs that are narrower than the interspaces, a subsutural ornamentation of numerous arched axial riblets crossed by undulating spiral threads (Figure 13), axial cords on last whorl that bifurcate anteriorly, and different denticle structure on parietal wall (Figure 12). It has a maximum reported size of only 17.5 mm. *Glyphostoma dentiferum* (Figures 14–16) has fewer, stronger axial ribs on apical whorls, an anal fasciole sculptured with numerous arched axial riblets (Figure 16), differently structured denticles on parietal wall (Figure 15), and a longer shiphonal canal. It grows larger than *G. coronaseminale*, with a maximum reported size of 32 mm (Rosenberg, 2009).

The bifurcated denticles of the projected third element of the labrum of *Glyphostoma coronaseminale* (Figure 5), have not been reported for any western Atlantic *Glyphostoma*. Notwithstanding the broken ends of this third element in the holotype, it is not at all fragile; the damage seems to have been cause by crab predation. It is possible that this third labral element is more fragile in other *Glyphostoma* species and has not been reported because of damage.

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REFERENCES

Bartsch, P. 1934. Reports on the collections obtained by the first Johnson-Smithsonian Deep-sea Expedition to the Puerto Rican Deep. New mollusks of the family Turritidae. Smithsonian Miscellaneous Collections 91(2): 1–29, 8 pls.

Dall, W.H. 1889. Reports on the results of dredgings, under the supervision of Alexander Agassiz, in the Gulf of Mexico (1877–78) and in the Caribbean Sea (1879–80), by the U. S. Coast Survey Steamer "Blake". Bulletin of the Museum of Comparative Zoology 18: 1–492, pls. 10–40.

Gabb, W.M. 1872. Description of some new Genera of Mollusca. Proceedings of the Academy of Natural Sciences of Philadelphia. 24: 270–271.

Garcia, E.F. 2003. Unexpected molluscan finds from the hydrocarbon vents off the Louisiana coast. American Conchologist 30(4): 28–30.

Garcia, E.F. 2005. Six new deep-water molluscan species (Gastropoda: Epitoniidae, Conoidea) from the Gulf of Mexico. Novapex 6(4): 79–87.

Garcia, E.F. 2006. Six new species of mollusks (Gastropoda: Cerithioidea, Buccinoidea, Muricoidea) from Bahía de Campeche, southwestern Gulf of Mexico. Novapex 7(4): 77–89.

Garcia, E.F. 2007a. Results of deep-water dredging in the Gulf of Mexico using the "Benthic Skimmer", and report on several geographie extensions, including two species not previously reported in the western Atlantic. The Festivus 39: 13–18.

Garcia, E.F. 2007b. Report on mollusks collected in a dredging expedition to Bahía de Campeche, southwestern Gulf of Mexieo. *American Conchologist* 35: 4–11.

Kaicher, S.D. 1984. Card Catalogue of World-wide Shells. Pack #39 – Turridae Part 1. cards [i–ii], 3882–3987. S.D. Kaicher, St. Petersburg.

Maury, C.J. 1917. Santo Domingo type section and fossils. Part 1. Mollusca. Bulletins of American Paleontology 5: 165–415, pls. 1–39.

Powell, A.W.B. 1966. The molluscan families Speightiidae and Turridae: an evaluation of the valid taxa, both Recent and fossil, with lists of characteristics species. Bulletin of the Auckland Institute and Museum 5: 1–184 pp., 23 pls.

Rosenberg, G. 2009. Malacolog 4.1.1: A Database of Western Atlantic Marine Mollusea. [WWW database (version 4.1.1)] URL http://www.malacolog.org/.

Williams, M. 2005. Shallow-water Turridae of Florida and the Caribbean. M. Williams, Tallevast.

Woodring, W.P. 1928. Miocene Mollusks from Bowden, Jamaica. Part II. Gastropods and discussion of results. Carnegie Institute of Washington Publication 385: vii + 564 pp., 40 pls.

WoRMS. 2014. *Glyphostoma* Gabb, 1873. Accessed through: World Register of Marine Species at http://www.marinespecies.org/aphia.php?p=taxdetails&id=205548 on 2014-12-25.